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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/632,110

08/01/2003

Ahmet Ekin

000687-00296

3478

27557

7590

05/01/2008

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EXAMINER

CZEKAJ, DAVID J

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

05/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/632,110	Applicant(s) EKIN ET AL.	
	Examiner DAVID CZEKAJ	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/18/04</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6724933), hereinafter referred to as "Lin") in view of Tovinkere et al. (6678635), (hereinafter referred to as "Tovinkere").

Regarding claim 1, Lin discloses an apparatus that relates to image processing (Lin: column 1, lines 7-9). This apparatus comprises "detecting a dominant color region in the video" (Lin: column 7, lines 32-35), "detecting boundaries of shots in the sequence in accordance with color data" (Lin: column 6, lines 51-65; column 7, lines 10-15), and "classifying at least one of the shots whose boundaries have been detected through spatial composition of the dominant color region" (Lin: column 6, lines 51-65). However, Lin fails to disclose the goal event and summarizing the sports sequence as claimed. Tovinkere teaches that automatically establishing indices for media data is difficult (Tovinkere: column 1, lines 59-61). To help alleviate this problem, Tovinkere discloses "detecting at least one of a goal event, person, and location in video sequence" (Tovinkere: column 4, lines 62-67) and "analyzing and summarizing the sports sequence" (Tovinkere: column 4, lines 62-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Lin and add the processing taught by Tovinkere in order to

obtain an apparatus that helps reduce the difficulty for establishing indices for media data.

Regarding claim 2, Lin discloses "the detecting is performed with respect to a plurality of color spaces" (Lin: column 7, lines 10-50, wherein the color space is the HSV).

3. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6724933), hereinafter referred to as "Lin") in view of Tovinkere et al. (6678635), (hereinafter referred to as "Tovinkere") in further view of Jun et al. (7027509), (hereinafter referred to as "Jun").

Regarding claim 3, note the examiners rejection for claim 1, and in addition, claim 3 differs from claim 1 in that claim 3 further requires the specifics of the detecting step. Jun teaches that prior art detection systems have low performance and detection speed (Jun: column 1, line 65 - column 2, line 3). To help alleviate this problem, Jun discloses "determining a peak of each color component" (Jun: figure 7), "determining an interval around each peak" (Jun: figures 7 and 10), and "determining a mean color value in each interval and classifying each pixel as belonging to the dominant color region or not in accordance to the mean color interval" (Jun: column 6, line 64 - column 7, line 5, wherein the mean is the average). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the processing taught by Jun in order to obtain an apparatus that increases the performance and detection speed of an image classification system.

Regarding claim 4, although not disclosed, it would have been obvious to

determine the distance between the pixel and mean color (Official Notice). Doing so would have been obvious in order to correctly determine when a shot change has occurred.

Regarding claim 5, Lin discloses "the detecting is performed a plurality of times through the sequence" (Lin: column 7, lines 10-16, wherein the processing performed on successive shots indicates the detecting is performed a plurality of times).

4. Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6724933), hereinafter referred to as "Lin") in view of Tovinkere et al. (6678635), (hereinafter referred to as "Tovinkere") in further view of Chakraborty (7110454).

Regarding claim 6, note the examiners rejection for claim 1, and in addition, claim 6 differs from claim 1 in that claim 6 further requires determining whether the frames are in the same shot. Chakraborty teaches that prior art classification systems only identify scene changes for certain sections of video (Chakraborty: column 4, lines 54-64). To help alleviate this problem, Chakraborty discloses "determining a ratio of pixels in the color region" (Chakraborty: column 12, lines 15-35) and "determining a difference between the ratio's and comparing the difference to a threshold" (Chakraborty: column 8, lines 25-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the processing taught by Chakraborty in order to obtain an apparatus that can correctly identify a scene change for the entire video sequence.

Regarding claim 7, Lin discloses "computing a histogram intersection for the first and second frames, computing a difference in color histogram similarity for the first and

second frame, and comparing the difference to a second threshold value" (Lin: column 6, lines 55-64; column 7, lines 10-65, wherein intersections are well known when comparing histograms).

Regarding claim 8, Lin discloses "selecting the threshold value in accordance with a type of shot whose boundaries are to be detected" (Lin: column 6, lines 52-64. The examiner notes it is well known to adjust the threshold with the types of shots).

Regarding claims 9 and 10, Lin in view of Chakraborty disclose "calculating a ratio of a number of pixels to a total number of pixels and if ratio is above threshold, classifying shot in accordance with the ratio and performing spatial composition on the dominant color region" (Lin: column 6, lines 51-65; Chakraborty: column 8, lines 25-65; column 12, lines 15-35).

Regarding claim 11, Tovinkere discloses "detecting the goal event with a template of characteristics which the goal event will satisfy" (Tovinkere: column 4, lines 25-27; column 4, lines 63-68).

5. Claims 12-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6724933), hereinafter referred to as "Lin") in view of Tovinkere et al. (6678635), (hereinafter referred to as "Tovinkere") in further view of Chakraborty (7110454) in further view of Li et al. (20030063798), (hereinafter referred to as "Li").

Regarding claim 12, note the examiners rejection for claim 6, and in addition, claim 12 differs from claim 6 in that claim 12 further requires the detection of a slow motion replay. Li teaches that slow motion replays normally relate to important events (Li: paragraph 0087). Therefore, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to implement the slow motion replay detection taught by Li in order to detect important events of the video sequence.

Regarding claim 13, Tovinkere in view of Li disclose "long shots are detected to define a beginning and end of a break in which the goal will be shown" (Tovinkere: figure 12; column 4, lines 64-67; Li: paragraph 0071).

Regarding claim 14, Lin in view of Li disclose "the template comprises an indication of duration of the break, occurrence of close up or out of field shot, and occurrence of slow-motion replay" (Lin: figures 2 and 6; Li: figure 1; paragraphs 0071 and 0087).

Regarding claim 15, Lin in view of Tovinkere disclose "detecting a referee by detecting a uniform color" (Lin: column 7, lines 10-50, wherein by detecting the color regions, Lin can detect the color of a uniform; Tovinkere: column 4, lines 25-30, wherein referee's are well known in a soccer game).

Regarding claim 16, Tovinkere in view of Li disclose "forming horizontal and vertical projections of a region having uniform color and determining whether the region corresponds to the referee" (Tovinkere: column 4, lines 25-27; Li: paragraph 0071).

Regarding claim 17, Tovinkere discloses "detecting a penalty box" (Tovinkere: column 4, lines 25-27. The examiner notes that penalty boxes are a well known part of a soccer game).

Regarding claim 18, Lin in view of Tovinkere in view of Li disclose "forming a mask region and detecting lines by edge response, and from the lines, locating the penalty box by applying size, distance, and parallelism" (Lin: column 7, lines 10-50;

Tovinkere: column 4, lines 25-27; Li: paragraph 0071).

Regarding claim 19, note the examiners rejection for claim 17.

Regarding claims 20-22, although not disclosed, it would have been obvious to perform compression by adjusting a bit allocation or adjusting a frame rate (Official Notice). Doing so would have been obvious in order to send large amounts of data over a limited bandwidth network.

Regarding claim 23, note the examiners rejection for claim 21.

Regarding claim 24, note the examiners rejection for claim 1.

Regarding claims 25-41, note the examiners rejection for claims 2-18.

Regarding claims 42-45, note the examiners rejection for claims 20-23.

Regarding claim 46, note the examiners rejection for claims 1 and 20-22.

Regarding claims 47-48, note the examiners rejection for claim 46.

Regarding claim 49, although not disclosed, it would have been obvious to assign a bit allocation or frame rate based on the type of shot (Official Notice). Doing so would have been obvious in order to adjust the quality depending on the type of activity in the game.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US-6810144	10-2004	McGee et al.
US-6144375	11-2000	Jain et al.
US-7027513	04-2006	Zhang et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CZEKAJ whose telephone number is (571)272-7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dave Czekaj/
Primary Examiner, Art Unit 2621